INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

23 September 2021 (am)

Subject SA3 – General Insurance

Specialist Advanced

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

1 The regulator is concerned about the exposure insurers have to insurance policies, where the insurer had not designed or priced the policies to include claims from cyber-related events but where the policy wording is not sufficiently clear and policyholders may have reasonable expectations of coverage. This risk is referred to as silent cyber risk.

(i) State three classes of business that may have silent cyber exposure, giving an example of a cyber-related claim for each class. [3]

(ii) Suggest possible reasons why the regulator has become concerned about silent cyber risks. [3]

(iii) Describe two approaches a company could take to estimate its silent cyber exposures, considering any practical challenges the company may face. [6]

(iv) Suggest possible actions that the insurance industry and its regulator could take to reduce market exposures to silent cyber risks. [5]

[Total 17]

2 (i) Outline the cover provided under a business interruption insurance policy. [3]

A flu-like virus that causes higher than normal levels of mortality and morbidity has spread globally, becoming a pandemic. Governments worldwide have taken various measures to slow the spread of the virus (for which there is currently no vaccine), including mandatory business closures and changes to ways of working to reduce the level of social contact. Governments have implemented significant financial interventions to mitigate the damage to their economies.

(ii) Outline four areas where the impact of the pandemic may be reflected in a general insurer's financial statements and regulatory returns. [4]

(iii) Discuss the impact of the pandemic to the general insurance industry, considering:

(a) pandemic-related losses and classes of business most impacted.

(b) impacts on claims profiles.

(c) impacts on premiums and exposures.

(d) investments and credit losses.

(e) operational impacts.

[15]

In a particular country with a developed general insurance market, the government is considering introducing a government-backed insurance scheme to provide additional capacity to the general insurance sector to increase the level of cover available for pandemic events.

(iv) Suggest reasons why the government may be considering this scheme. [3]

(v) Discuss the potential advantages and disadvantages of this proposal. [6]

(vi) Suggest three alternative ways to increase pandemic insurance availability. [3]

[Total 34]

3 (i) Explain the difference between risk and rating factors. [3]

(ii) Suggest four possible reasons why risk factors cannot always be used as rating factors. [4]

(iii) Suggest four possible risk factors for motor insurance that may not be possible to use as rating factors. [2]

(iv) Recommend with a reason, for each of the four motor risk factors identified in (iii), one rating factor that may be used as a proxy. [4]

(v) Outline why most motor insurance policies have a compulsory minimum excess and the option of an additional voluntary excess. [5]

(vi) Discuss the likely impact of compulsory and voluntary excesses on the claims profile. [5]

A niche insurer, TelematiCarInsurance Ltd, sells only private motor policies and requires all policyholders to have a telematics box fitted to their car. The telematics box monitors all car movements and can assess speed, braking and acceleration as well as measuring the total mileage.

Drivers are scored under the three categories of speed, braking and acceleration. The drivers can download a mobile phone application that shows them their scores, which are updated daily. Where the driver score falls below a minimum standard, the insurer reserves the right to cancel the policy with short notice. Unless the policy is cancelled, there is no impact on cover or price from the driver grading.

Premiums are payable monthly and are determined according to the following formula:

$$P = F + mV \times (1 - 0.05n)$$

where

- F is a fixed amount that is exactly the same for every policy started in a particular calendar year.
- m is the actual mileage (distance) driven in the policy year.
- V is a factor that is determined solely with respect to the make and model of the vehicle.
- n is the number of years insured previously with the insurer but restricted to a maximum value of 10.

At inception, the mileage used in the premium calculation is based on an estimate of the expected mileage provided by the policyholder. Monthly premiums are automatically varied to account for the actual mileage covered the previous month.

(vii) Discuss possible reasons why the formula does not use experience rating, age, sex or location, considering whether this exposes the company to anti-selection. [8]

(viii) Comment on potential differences in policyholder profile and average premium relative to traditional insurers not using telematics. [6]

(ix) Comment on potential differences in claims profile relative to traditional insurers not using telematics. [6]

(x) Discuss the advantages and disadvantages of a pricing approach where the premium varies directly based on the number of miles driven. [6]

[Total 49]

END OF PAPER